



# 2400 eb1

## Material Safety Data Sheet

### 1 Company Identification

Octel Starreon LLC  
8375 S. Willow Street  
Littleton, CO 80124

Product information 1-800-441-9547  
In Case of Emergency  
Call Chemtrec 1-800-424-9300

### 2 Composition / Ingredient Information

<u>Material</u>	<u>CAS Number</u>	<u>%</u>
Detergent .....		5-15
Heavy Aromatic Naphtha .....	64742-94-5 .....	<10
*(Naphthalene) .....	91-20-3 .....	(<1)
2-Ethylhexyl Nitrate .....	27247-96-7 .....	50-70
2-Ethylhexyl Alcohol .....	104-76-7 .....	<2
*Ethylene Glycol N-Butyl Ether .....	111-76-2 .....	<5
Light Ends of Polyethylbenzene residue .....	178535-25-6 .....	10-30
(Triethylbenzene) .....	102-25-0 .....	(<5)

\*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

### 3 Hazardous Identification

USEPA SF



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#### Potential Health Effects

Skin contact with Detergent may cause skin sensitization upon extended contact. The compound may cause skin sensitization in susceptible individuals. Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision. Inhalation may initially include irritation of the upper respiratory passages with coughing and discomfort. Individuals with preexisting diseases of the central nervous system may have increased susceptibility to the toxicity of excessive exposures to Detergent.

Prolonged or repeated exposure to Ethylene Glycol N-Butyl Ether may cause skin irritation which may be slow to heal. A single prolonged exposure may result in the material being absorbed in harmful amounts. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Repeated minor exposure may result in absorption of harmful amounts. May cause moderate eye irritation which may be slow to heal. May cause moderate corneal injury. Effects may be slow to heal. Vapors of Ethylene Glycol N-Butyl Ether may irritate eyes. A single prolonged excessive inhalation exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract. Observations in animals include blood and kidney effects. Single dose oral toxicity of Ethylene Glycol N-Butyl Ether is considered to be moderate. Small amounts swallowed incidental to normal handling

operations are not likely to cause injury; swallowing amounts larger than that may cause injury. One case of Massive Ingestion (i.e. attempted suicide) reported blood (hemolysis) and kidney effects. Eye contact with the product ingredients may cause eye irritation with discomfort, tearing, or blurring of vision. Direct exposure may cause skin irritation (redness, swelling). A single prolonged exposure may result in the material being absorbed through the skin in harmful amounts.

Inhalation or ingestion of 2-Ethylhexyl Nitrate may initially cause nonspecific discomfort, such as nausea, headache, or weakness. Exposed workers reported throbbing headaches and heart palpitations. Data to evaluate the skin permeation hazard of this compound are insufficient. There are no reports of human sensitization. No adequate epidemiologic studies are available for this compound.

In general, overexposure to high atmospheric concentrations of alkyl-substituted aromatics may produce central nervous system depression, headache, dizziness, incoordination, nausea and loss of appetite. Aspiration (liquid enters the lung), may cause lung damage due to chemical pneumonia, a condition caused by petroleum-like solvents.

Minute amounts of petroleum hydrocarbons aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possible death.

Individuals with preexisting diseases of the kidneys or liver may have increased susceptibility to the toxicity of excessive exposures.

Inhalation or ingestion of Heavy Aromatic Naphtha may cause central nervous system depression with anesthetic effects, such as dizziness, headache, confusion, incoordination and loss of consciousness. Higher exposures may result in fatality from gross overexposure. Ingestion may cause gastrointestinal irritation. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs.

### **Carcinogenicity Information**

Naphthalene has been classified by the Internal Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B). This IARC classification was based upon limited evidence of carcinogenicity to animals and inadequate evidence of carcinogenicity to humans.

## **4 First Aid Measures**

### **Inhalation**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

### **Skin Contact**

Flush skin with water after contact. Wash contaminated clothing before reuse.

### **Eye Contact**

In case of contact immediately, flush eyes with plenty of water for at least 15 minutes. Call a physician.

### **Ingestion**

If swallowed, do not induce vomiting. Allow victim to rinse his mouth and then to drink 2-4 cupfuls of water. Never give anything by mouth to an unconscious person. Call a physician.

### **Notes to Physicians**

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400-ml water and mix thoroughly. Administer 5 ml/kg or 350 ml for an average adult.

Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances. Activated charcoal may induce vomiting, but may be given after emesis or lavage to absorb toxic additives. Steroid therapy in mild to moderate cases does not improve outcome. Bacterial pneumonia often occurs after exposure, but prophylactic antibiotics are not indicated and should be reserved for documented bacterial pneumonia.

## **5 Fire Fighting Measures**

### **Flammable Properties**

Flash Point..... 160°F (71°C)

Method..... PMCC

### **Flammable Properties of 2-Ethylhexyl Nitrate**

Flash Point.....79°C (174°F)

Method.....TCC

Flammable limits in air.....LEL 0.25% by volume

Autoignition.....130°C (266°F)

Autodecomposition.....185°C (365°F)

Exotherm initiation temperature.....120°C (248°F)

(Self-heating sustained due to decomposition)

Combustible Heating can release vapors, which can be ignited.

Hazardous gases/vapors produced in fire are carbon monoxide and oxides of nitrogen. Risk of explosion if heated under confinement.

### **Extinguishing Media**

Water Spray, Foam, Dry Chemical, CO<sub>2</sub>.

### **Fire Fighting Instructions**

Wear self-contained breathing apparatus. Wear full protective equipment. Cool tank/container with water spray. Fight fire from maximum distance, use extreme caution as heat may decompose material and rupture containers.

## **6 Accidental Release Measures**

Note: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) SECTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Soak up with sawdust, sand, oil dry or other absorbent material. Remove source of heat, sparks, flame, impact, friction, or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

### **Spill Clean-Up**

Soak up with sawdust, sand, oil dry or other absorbent material.

### **Accidental Release Measures**

Spills are very slippery and should be cleaned up promptly. Unless released material is cleaned up immediately for reprocessing, recycling, or reuse, a release of 100 lbs. may trigger the reporting requirements of CERCLA Section 103.

## **7 Handling and Storage**

### **Handling (Personnel)**

Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

### **Handling (Physical Aspects)**

Keep away from heat, sparks and flames.

### **Storage**

Store in a well-ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations. Refer to Octel Starreon PLMR-2001-8, Issue 2, "CI-0801 Cetane Improver Safety and Handling" for detailed storage and handling guidance. This bulletin presents background information on thermal stability for storage and safe handling. This bulletin also describes proper, safe unloading of equipment from bulk containers.

Important considerations are:

- Properly insulated tank car or tank truck.
- Cap steam coils and valves on tank car, truck and storage tanks.
- Water deluge system for storage tank.
- One or more of the following safeguards is recommended - unrestricted recirculation loop and/or thermal sensor and relief in pump system and/or low flow pump interlock.

## **8 Exposure Controls**

### **Engineering Controls**

Use only with adequate ventilation. Keep container tightly closed.

### **Personal Protective Equipment**

#### **Eye/Face Protection**

Wear coverall chemical splash goggles or safety glasses.

#### **Respirators**

Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

#### **Protective Clothing**

Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, hood and jacket.



## Exposure Limits

### Heavy Aromatic Naphtha:

PEL (OSHA) ..... None established  
TLV (ACGIH) ..... None established  
AEL\* (Octel Starreon) ..... 50 ppm, 300 mg/m<sup>3</sup>, 8 hr, TWA

### Naphthalene:

PEL (OSHA) ..... 10 ppm, 50 mg/m<sup>3</sup>, 8 hr. TWA  
TLV (ACGIH) ..... 10 ppm, 52 mg/m<sup>3</sup>, 8 hr TWA, Skin; A4  
STEL 15 ppm, 79 mg/m<sup>3</sup>, A4  
AEL\* (Octel Starreon) ..... None established

### 2-Ethylhexyl Nitrate:

PEL (OSHA) ..... None established  
TLV (ACGIH) ..... None established  
AEL\* (Octel Starreon) ..... 5 ppm, 8 & 12 hr, TWA

### 2-Ethylhexyl Alcohol:

PEL (OSHA) ..... None established  
TLV (ACGIH) ..... None established  
AEL\* (Octel Starreon) ..... 20 ppm, 8 hr, TWA

### Ethylene Glycol N-Butyl Ether:

PEL (OSHA) ..... 25 ppm, skin  
TLV (ACGIH) ..... 20 ppm, 8 hr TWA, A3  
AEL\* (Octel Starreon) ..... None established

The "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposure should be considered

\* AEL is Octel Starreon's acceptable exposure limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

## 9 Physical and Chemical Properties

### Physical Data

Appearance ..... Clear Amber  
Form ..... Liquid  
Odor ..... Aromatic  
Specific Gravity ..... 0.944 @ 60/60°F (16/16°C)  
Density ..... 7.86 lbs./gal. @ 60°F (16°C)  
Solubility in water ..... <5 wt%

### Physical Data for 2-Ethylhexyl Nitrate

Appearance..... Amber  
Form..... Liquid  
Odor..... Strong Pungent  
Specific Gravity..... 0.967 @ 60/60°F (16/16°C)  
Density..... 8.06 lbs./gal @ 60°F (16°C)  
Solubility in water..... 0.02 wt%  
Boiling Point..... Decomposes above 100°C (212°F)  
Vapor Pressure..... 0.035 mm Hg @ 20°C (68°F)  
Vapor Density..... >1 (air=1)  
Evaporation Rate..... <1 (Butyl Acetate = 1)

### Physical Hazard

2-Ethylhexyl nitrate should not be exposed to steam, sparks, flames, or hot surfaces. Rapid gas evolution during decomposition may lead to bursting of container and may be explosive if heated under confinement.

## 10 Stability and Reactivity

### Chemical Stability

Stable at normal temperatures and storage conditions.

### Incompatibility

Incompatible with strong oxidizers.

### Decomposition

Decomposes with heat. Hazardous gases/vapors produced are oxides of nitrogen and carbon monoxide. Decomposition temperature is >100°C (>212°F).

### Polymerization

Will not occur.

## 11 Toxicological Information

### Animal Data

#### Heavy Aromatic Naphtha:

Inhalation 6 hour LC50..... >11.67 mg/L in rats  
Skin Absorption LD50..... >3,160 mg/kg in rabbits  
Oral LD50..... >5,000 mg/kg in rats

#### Naphthalene:

Inhalation 15 minute LC50:..... >0.34 mg/L in rats  
Skin Absorption LD50:..... 10,000 mg/kg in rabbits  
Oral LD50:..... 1,780 mg/kg in rats

#### 2-Ethylhexyl Nitrate:

Inhalation 1 hour LC50..... >639 ppm in rats  
Skin absorption LD50..... >4,820 mg/kg in rabbits  
Oral LD50..... >9,640 mg/kg in rats

**Detergent:**

Skin absorption LD50..... 660 mg/kg in rabbits  
Oral LD50..... 3,990 mg/kg in rats

**2-Ethylhexyl Alcohol:**

Inhalation 6 hour LC50..... >2,000 ppm in rats  
Skin absorption LD50..... 1,970 mg/kg in rabbits  
Oral LD50..... 3,730 mg/kg in rats

**Ethylene Glycol N-Butyl Ether:**

Inhalation LC50..... 700 ppm in rats, 7 hours  
Skin Absorption LD50 ..... 220 mg/kg in rabbits  
Oral LD50..... 470 mg/kg in rats

Heavy Aromatic Naphtha is a severe skin irritant, and is an eye irritant, but is not a skin sensitizer in animals. Repeated inhalation exposures caused reduced growth rate, respiratory tract irritation, congestion in liver and spleen, changes in blood tests and equilibrium disturbances. No animal test reports are available to define carcinogenic, mutagenic, developmental or reproductive hazards.

The detergent is a severe skin and eye irritant and is a skin sensitizer in animals. Effects of long term dermal exposures include hyperkeratosis and necrosis of the epidermis but no evidence of increased incidences of tumors. Repeated dietary administration of high doses produced depressed liver weights and body weight loss. Tests in animals demonstrate no carcinogenic activity. No animal test reports are available to define developmental or reproductive hazards. The Detergent does produce genetic damage in bacterial and mammalian cell cultures but has not been tested in animals.

2-Ethylhexyl Nitrate is not a skin and eye irritant, but is untested for animal sensitization. Single ingestion exposure produced weight loss, diarrhea, incoordination and prostration. Repeated inhalation exposures produced weight loss and increased liver weight. No animal test reports are available to define carcinogenic, mutagenic, developmental, or reproductive hazards.

## **12 Ecological Information**

**Heavy Aromatic Naphtha:**

96 hour LC50, fathead minnows: 4.2 - 20.8 mg/L

**2-Ethylhexyl Nitrate:**

24 hour LC50, Trout: 145 mg/L  
48 hour LC50, Trout: 116 mg/L  
24 hour LC50, Bluegill: 6.5 mg/L  
48 hour LC50, Bluegill: 6.0 mg/L

## **13 Disposal Considerations**

**Waste Disposal**

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations.

## 14 Shipping Information

### DOT

Proper Shipping Name..... Combustible Liquid, n.o.s.  
(2-Ethylhexyl Nitrate)  
Hazard Class ..... 3  
I.D. No. (UN/NA) ..... NA 1993  
Packing Group ..... III  
Special Information ..... Flash Point: 71°C  
Marine Pollutant ..... 2-Ethylhexyl Nitrate  
Reportable Quantity ..... Naphthalene 100 lbs.  
DOT Label(s) ..... Combustible Liquid

### IMO

Proper Shipping Name..... Environmentally Hazardous Substance, Liquid, n.o.s.  
(2-Ethylhexyl Nitrate)  
Hazard Class ..... 9  
UN No. .... 3082  
Packing Group ..... III  
Special Information ..... Flash Point: 71°C  
Marine Pollutant ..... 2-Ethylhexyl Nitrate  
IMO Label ..... Miscellaneous Hazardous Substance

### Shipping Containers

Steel Drums UN1A1/Y/100

## 15 US Federal Regulations

TSCA Inventory Status..... Reported / Included

Title III Hazard Classifications Sections 311, 312

Acute ..... Yes  
Chronic ..... Yes  
Fire ..... Yes  
Reactivity ..... Yes  
Pressure ..... No

## 16 Other Information

### NPCA-HMIS Rating

Health..... 2\* (Chronic Health Effects)  
Flammability..... 2  
Reactivity ..... 3

Personal Protection rating to be supplied by user depending on use conditions

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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

**Responsibility for MSDS:**

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